



INDIANA DEPARTMENT OF TRANSPORTATION

Driving Indiana's Economic Growth

Memorandum

February 6, 2009

CONSTRUCTION MEMORANDUM
09-03

TO: District Deputy Commissioners
Technical Services Directors
District Construction Engineers
District Testing Engineers
District Area Engineers
Project Engineers/Supervisors

FROM: Mark A. Miller, Director *MAM*
Division of Construction Management

SUBJECT: PG Asphalt Binder Index Material Cost Adjustments

A new recurring special provision, 109-C-219, PG Asphalt Binder Material Cost Adjustments, has been issued and will begin appearing in contracts with the February 11, 2009 letting. This provision provides for pay adjustments to be made to a contractor based on fluctuations in the material cost of PG asphalt binder. A copy of the special provision is attached.

Pay adjustments will be calculated using a monthly PG binder index that will be calculated by the Office of Materials Management and posted to the Department's website at <http://www.in.gov/dot/div/contracts/standards/>.

Note that a contractor must indicate with their bid whether they elect to participate in the PG binder index provision or not.

If the contractor elects not want to participate in the provision, there will be no change from current practice in the manner that HMA mixture pay items are administered and the contractor will not be eligible at any time during the contract for pay adjustments due to changes in the cost of PG binder.

If the contractor elects to participate in the provision, a new pay item, Payment Adjustment, PG Asphalt Binder, will be used to make adjusted payment due to PG binder cost fluctuations that exceed the criteria in the recurring special provision. When this is the case, the PE/PS will need to determine on a monthly basis whether or not a payment adjustment is required. An Excel spreadsheet has been developed to assist the PE/PS with this determination and calculation of pay adjustment. The spreadsheet, detailed instruction for its use and an example calculation are attached with this memo and are posted on the Department's website at <http://www.in.gov/dot/div/contracts/standards/>.

The following data is required by the Excel spreadsheet:

1. The pay item/DMF or JMF combination for each HMA mixture placed during the previous month.
2. The Letting Index (LI) (once it is obtained from the Department website, it does not change throughout the contract).
3. The Binder Index (BI) for the previous month (obtained from the Department website).
4. The quantities associated with each HMA mixture pay item/DMF or JMF combination placed during the previous month.
5. The asphalt content associated with each HMA mixture DMF/JMF.

After the above data is entered in the spreadsheet, it will calculate the amount of Mixture Payment Adjustment (MPA) for the month. If the monthly BI is within 10.1% of the LI, no MPA is required. If the monthly BI is more than 10.1% higher than the LI, the MPA will be additional compensation to the contractor. If the monthly BI is more than 10.1% lower than the LI, the MPA will be a credit to the contract.

If there are any questions related to this memo or attachments, please contact the Division of Construction Management Field Engineer for your District.

Attachments

MAM/jgj

109-C-219 PG ASPHALT BINDER MATERIAL COST ADJUSTMENTS

(Revised 12-11-08)

The Standard Specifications are revised as follows:

SECTION 109, AFTER LINE 643, INSERT AS FOLLOWS:

109.05.3 PG Asphalt Binder Material Cost Adjustments

The Contractor shall elect at the time the bid proposal is submitted, in a manner determined by the Department, whether or not to enact PG asphalt binder material cost adjustments. If the Contractor elects not to enact such adjustments, there will be no adjusted payment made to the Contractor for changes in the cost of PG asphalt binder materials used on the project and the provisions of this specification will not be applied to the contract. PG asphalt binder material cost adjustments will not be added to the contract at any time after the Contractor has elected not to enact such adjustments with submittal of the bid proposal.

When the Contractor elects to enact PG asphalt binder material cost adjustments at the time the bid proposal is submitted, the Department will adjust payment to the Contractor due to an increase or decrease in the cost of PG asphalt binder material used on the project to produce HMA mixtures that are paid in accordance with 304, 401, 402, 410, 610 or 718. Payment will be adjusted when an increase or decrease in the PG asphalt binder index for the contract exceeds 10 percent. Payment will only be adjusted when the total original or revised quantity of at least one HMA pay item exceeds 2,000 tons (2,000 Mg).

For contracts without any original HMA pay item quantity equal to or greater than 2,000 tons (2,000 Mg), adjusted payment will not be made until the revised quantity of at least one HMA pay item meets the quantity criteria. No adjusted payment will be made on any quantity of HMA items placed prior to when the 2,000 ton (2,000 Mg) criteria has been met.

The Department will determine a PG asphalt binder index from one or more commercial services that provide regional indices. The PG asphalt binder index will be maintained by the Office of Materials Management and posted on the Department's website. The posting will include an explanation of how the index is determined. A monthly payment adjustment will be calculated for each HMA pay item placed on the contract during that month. The total PG asphalt binder adjustment applied to the contract each month will be the sum of the calculations for each HMA pay item. The payment adjustment for each HMA pay item will be calculated as follows:

For a price increase:

$$MPA = (Q \times Pb) / 100 \times LI \times [(BI - LI) / LI - 0.10]$$

For a price decrease:

$$MPA = (Q \times Pb) / 100 \times LI \times [(BI - LI) / LI + 0.10]$$

Where:

- MPA* = Mixture Payment Adjustment, in dollars, calculated to the nearest 0.01 dollar for each HMA pay item.
- Q* = Quantity of a HMA pay item placed, in tons (megagrams), entered to the actual 0.01 unit placed. The quantity will be calculated prior to calculation of any other quantity adjustment.
- Pb* = Percent of virgin asphalt binder from the DMF, in the adjustment period, or JMF for the HMA mixture, entered to the nearest 0.1.
- BI* = PG asphalt binder index for the month the HMA pay item is placed, reported to the nearest whole dollar.
- LI* = PG asphalt binder index for the contract. The LI for all original contract HMA pay items equals the BI for the month immediately prior to the month of letting for the contract. The LI for any HMA extra work pay item will be the BI for the month the unit price for the pay item is submitted by the Contractor.

The calculation of $(BI-LI)/LI$ will be rounded to the nearest 0.001. Payment will only be adjusted when the absolute value of $(BI-LI)/LI$ is equal to or greater than 0.101.

If HMA pay items are placed beyond the specified contract completion date for the contract, the Department will calculate pay adjustments on the BI for the month of the specified completion date or the month of placement, whichever result is less.

The unit price of PG asphalt binder payment adjustment will be one dollar and the pay quantities will be in units of dollars.

Payment will be made under:

Pay Item	Pay Unit Symbol
Payment Adjustment, PG Asphalt Binder	DOL

INSTRUCTIONS
for
RECURRING SPECIAL PROVISION
109-C-219 PG ASPHALT BINDER MATERIAL COST ADJUSTMENT
and the
COST ADJUSTMENT SPREADSHEET
(Rev. 02-06-09)

Purpose

The purpose of Recurring Special Provision 109-C-219 is to reduce the risk taken by contractors during the bidding process, which in theory will result in less risk the Department takes for inflated bid prices due the contractor's uncertainty about the future cost of PG binder for HMA. This document is intended as a guide for implementation of the specification and as instruction for calculating adjusted payments due in accordance with the specification.

Implementation

Recurring Special Provision 109-C-219 and the associated pay item, "Payment Adjustment, PG Asphalt Binder", will be initially be included in all contracts let with 304, 401, 402, 410, 610 and 718 pay items. This is to avoid the need to write a Change Order to add the specification and pay item if the bidder opts for the provision.

At the time a bid proposal is submitted, the bidder will elect whether to opt in or out of use of Recurring Special Provision 109-C-219. This election will be noted on the proposal page of the bidder's submittal. The PE/S must obtain a copy of the proposal from the District and check the proposal page to determine if the provision is to be implemented on any given contract.

If the bidder has opted out of using the provision, then the provision and the pay item are not to be used on the contract. The contractor cannot change his option after submittal of his bid regardless of the quantity of HMA material in the contract. There is no need to write a Change Order to delete the provision and pay item if the contractor has opted out; simply ignore the provision and do not pay any quantity on the item.

If the contractor has opted to include the provision, then any contract with at least one HMA pay item with an original or revised quantity greater than or equal to 2,000 Tons (2,000 Mg) will require pay adjustments to be calculated for the PG binder used in all HMA mixture pay items on the contract. For a contract without any original HMA pay item quantity equal to or greater than 2,000 ton (2,000 Mg), it is important to note that the provision does not take effect until and if the quantity of at least one HMA item meets or exceeds the 2,000 ton (2,000 Mg) requirement. Only those quantities of HMA placed after at least one HMA pay item meets the requirements are eligible for adjusted payment.

Payment adjustments will only be applied to contract pay items for HMA mixtures paid in accordance with 304, 401, 402, 410, 610 and 718.

Calculation of Adjustments

When a contractor has opted to use the provision and the contract meets the quantity requirements, it will be necessary to perform an analysis on a monthly basis in accordance with the recurring special provision to determine whether additional payment is due to the contractor

or a credit is due the Department for fluctuations in the actual material cost of asphalt PG binders.

PG binder price fluctuations are measured by the ratio of a monthly binder index (BI) to an established letting binder index (LI) for the contract. The BI is determined by the Office of Materials Management and is published on a monthly basis on the Department's website. The letting index (LI) is the BI for the month prior to the month of the contract letting, and will serve as the baseline of comparison for the BI throughout the duration of the contract.

If the BI for a given month is less than plus or minus 10.1% of the LI, no monthly adjustment is required. If the BI is at least 10.1% greater than the LI, then the contractor is due additional payment for all HMA pay items in the contract. If the BI is at least 10.1% less than the LI, then the Department is due a credit for all HMA pay items on the contract.

A spreadsheet is maintained on the Department's website and is available to calculate the required monthly pay adjustments as necessary.

For contracts which meet the payment adjustment criteria, after the end of each month, the PE/S will determine the quantities of all qualifying HMA mixture pay items associated with each DMF/JMF and enter the data into the spreadsheet. The spreadsheet will calculate the required adjustment for the month related to the data input. The adjustment calculation should be performed and the result incorporated into a progress payment estimate within 30 days of the end of the month for which an adjustment is determined.

Spreadsheet Data Input Instructions

Locate the spreadsheet on the Department's website and save a copy to the desktop or a folder on the computer. Close the internet spreadsheet and open the saved copy, then enter the required data for the month and save the completed spreadsheet as part of the contract files (see Spreadsheet Data File Management below). This process will be repeated for each month as necessary.

The data fields that require user input are highlighted on the spreadsheet. The other boxes in the spreadsheet are locked and are used to display information or results which are calculated automatically.

1. **Contract No.** – Enter the contract number in the format “Prefix-XXXXXX”
2. **Letting Date** – Enter the date of the letting in the format MM/DD/YYYY.
3. **Month & Year of Calculation** – Enter the month and year that the adjustment is being calculated for in the format MM/YYYY.
4. **LI** – Enter the binder index for the month before the letting. This information is available from the Office of Materials Management and on the Department's website. The LI is the BI for the month prior to the month of the contract letting. Once the LI value is determined, it will remain the same throughout the contract duration.
5. **BI** – Enter the binder index for the month under consideration for the adjustment determination. This information is available from the Office of Materials Management and on the Department's website.
6. After the **LI** and **BI** are entered, two calculations will be performed:
 - a. The $(BI - LI)/100$ will be calculated to the nearest 0.001,

- b. The absolute value of $(BI - LI)/100$ will be compared to 0.101. If the result is less than 0.101, then no adjustment will be made for the month and the result of **\$0.00** will be shown in **Payment Adjustment, PG Asphalt Binder**. If the result is equal to or greater than 0.101, then a pay adjustment will be calculated for each pay item on the spreadsheet and the total adjustment for the month will be shown in **Payment Adjustment, PG Asphalt Binder**.
7. **MPA Data** – Enter the information in the highlighted boxes for each qualifying HMA pay item. The data in this section must be broken down by pay item and DMF/JMF. If a contractor uses multiple DMF/JMFs for a single pay item, there needs to be separate entries for each pay item/DMF/JMF combination. For example, if a contractor places HMA Base, HMA Intermediate, and HMA Surface during the month under consideration which is all paid for in an “HMA for Approaches” pay item, there would be at least three entries for that pay item because each mixture requires a different DMF/JMF.

Once the user has determined all of the applicable pay item/DMF/JMF combinations, the appropriate data for each combination is entered. This data includes “**HMA Pay Item No.**”, “**Pay Item Description**”, “**Q**” (quantity of mixture placed for the month by DMF/JMF), “**DMF or JMF**”, and “**Pb**” (percentage of virgin PG binder used in the mixture from the DMF or JMF). Once this data is input, the spreadsheet automatically calculates the payment adjustment amount in dollars for each line and also calculates the total adjustment for all mixtures for the month.

8. **Item No.** – Below the “MPA Data” table, input the contract pay item number for Payment Adjustment, PG Asphalt Binder from the Schedule of Pay Items.
9. **FCR Page No.** – The spreadsheet is set up to allow the user print a hard copy of each month’s adjustment for the Final Construction Record. The user should input the appropriate page number for the month in sequence throughout the duration of the contract. As distributed, the spreadsheet has no provision to automatically number the pages, so the data must be input.

An example spreadsheet showing entered data and results is also available on the Department’s website. The user can change the LI, BI and Q to see how changes affect the adjustment calculation.

Spreadsheet Data File Management

It is recommended that the spreadsheet for each month be saved using a unique filename, i.e. – “XXXXXX_July_2009.xls”, where “XXXXXX” is the 5 digit contract number. The spreadsheet should then be attached to the Correspondence Log in SiteManager in the “Other” document category as an “Other” type document.

The spreadsheet has some limitations. There are only fifteen lines available for data input in the “MPA Data” table. If a contractor places more than fifteen pay item/DMF/JMF combinations during the month under consideration, more than one spreadsheet will be required for that month.

Questions about the PG Binder Index and spreadsheet should be directed to the Construction Field Engineer for the District.

**Indiana Department of Transportation
PG Asphalt Binder Material Cost Adjustment Calculation**

Rev. 08-07-08

Contract No: R-39000 **Letting Date:** May 6, 2009 **Month & Year of Calculation:** June-09

LI = 645 **BI** = 715 **(BI - LI)/LI** = 0.109

Absolute Value of **(BI - LI)/LI** > 0.101? **YES** MPA Calculated Below For Price Increase: **MPA = (Q x Pb)/100 x LI x [(BI - LI)/LI - 0.100]**
For Price Decrease: **MPA = (Q x Pb)/100 x LI x [(BI - LI)/LI + 0.100]**

MPA = Mixture Payment Adjustment; **Q** = Quantity of HMA pay item placed during the month; **Pb** = Percent of virgin asphalt binder from DMF or JMF;
LI = Asphalt binder index for the contract (= BI for month prior to letting); **BI** = Asphalt binder index for the month

MPA Data					
HMA Pay Item No.	Pay Item Description	Q (Ton or Mg)	DMF or JMF	Pb (%)	MPA (\$)
59	QC/QA HMA,5,76,SURFACE,9.5MM	1712.32	123456	4.1	386.13
62	QC/QA HMA,5,76,INTERMEDIATE,OG 25.0MM	3426.87	123456	4.6	867.00
63	HMA SURFACE TYPE B	234.12	123456	4.7	60.52
64	HMA INTERMEDIATE TYPE B	476.98	123456	5.1	133.79
65	HMA BASE TYPE B	934.56	123456	4.8	246.72
66	HMA, TYPE B, WEDGE & LEVEL	402.17	123456	5.2	115.02
273	HMA PAVEMENT MIX, WARRANTED	51263.17	123456	4.3	12,123.74
274	SMA PAVEMENT MIX, WARRANTED	12376.92	123456	4.6	3,131.36
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00
					0.00

For **June-09** Item No. **68** **Payment Adjustment, PG Asphalt Binder = (Sum of MPA)** **\$17,064.28**